

Response to 1st Written Opinion : 29 January 2004

Application No. **PCT/SG03/00036** Applicant : **REUTERS LIMITED et al**

International Filing Date : **24 February 2003** Priority Date : **2 April 2002**

Title : **Metadata Database Management Authorized System And Method Therefor** **P. Thong**
Officer

AMENDMENTS

Claims 31 to 41 are cancelled.

Independent claim 1 is amended, to incorporate features of dependent claim 19 and also additional features as supported by the specifications.

Dependent claim 19 is cancelled.

Independent claim 42 is amended, to incorporate features of dependent claim 19 and also additional features as supported by the specifications.

Claims have been renumbered to take into account the above amendments.

REMARKS

In the first Written Opinion dated 26 September 2003, the Authorized Officer had objected to claims 1 – 52 for lack of Novelty and Inventive Step.

The Authorized Officer has further stated that the citations D1 to D3 are considered relevant to the subject matter of the claims as a whole and that citations D4 and D5 are relevant to the subject matter of claims 31 to 41 as filed of the present invention.

The Authorized Officer also has stated that citation D1 as one example, discloses an object oriented database 20 and an object oriented metabase information store 23 for storing:

- a) metadata in relation to data eg. Metadata on data format and relationships;
- b) metadata in relation to information source; and

c) metadata in relation to information user.

The Authorized Officer further states that the citation D1 discloses metadata subsystems 26, 27, 31 (metadata applications) that use the above metadata to manage, redefine and update various knowledge aspects i.e. to manage, redefine, update complex relationships and derivative relationships of items of database 20. The Authorized Officer contends that in view of such disclosures, the subject matter of the claims cannot be considered Novel and nor Inventive.

Responsive to the Authorized Officer's Objections, independent Claim 1 and independent claim 42 as filed has been amended and limitations including limitations of dependent Claim 19 are now incorporated into Independent Claim 1 and independent claim 42 as amended now renumbered to independent claim 30. Further, Claim 1 and Claim 30 as amended further calls out the feature where at least some of the metadata stored in the metadata database constitute at least one portion of the metadata database, and the at least one portion of the metadata database is integrated by being inter-coupled by a common information bus to the at least one metadata application.

The citation D1 teaches an object oriented information platform that automates the collection of data, provide a method for organizing the library of information and provide analysis using multiple content-types and thereby provide a market understanding necessary to execute rapid and knowledgeable decision making. The information platform of citation D1 collects metadata using the data source catalog and automatically assigns metadata by analyzing the information content. The Authorized Officer has also stated that D1, discloses an object oriented database 20 and an object oriented metabase information store 23 for storing: a) metadata in relation to data eg. Metadata on data format and relationships; b) metadata in relation to information source; and c) metadata in relation to information user.

Citation D2 teaches an collaborative information system using a metadata enhanced database (metabase) for collaborative sharing and credibility assessment of information and of metabase users by evaluating the reliability of the metabase information. As stated on page 10 "USER ACCOUNTS AND USER ADMINISTRATION",

rather than managing the metabase information itself, citation D2 discloses the feature where the metabase administrator determines the criteria for users to access the metabase and manages the rules by which the users can manipulate the metabase information. Citation D2 further discloses the information system having means for reliability assessment means for assessing reliability of data and of metabase users and also ranking means for ranking metabase users for assessing their reliability.

Citation D3 teaches a system for integrating data elements from an operational database of a service provider into a predetermined format for supporting collection of the Internet and electronic commerce data. The citation D3 discloses the system having a database for storing eCommerce data and transactional data from the Internet and a logical data model providing description of the database for facilitating integration of a variety of formats of eCommerce and Internet data.

The present invention as claimed in amended claims 1 and 30 calls out a metadata database management system for at least one database. In particular, the system in accordance with the present invention comprises a metadata database and a knowledge manager coupled to the metadata database. Some of the metadata stored in the metadata database further constitutes at least one portion of the metadata database, where the at least one portion of the metadata database is integrated by being coupled by a common information bus to the metadata applications of the knowledge manager.

The citations D1 to D3 do not teach or suggest such a knowledge manager for managing the plurality of knowledge aspects of the database nor the interaction of being inter-coupled by a common information bus to the portions of the metadata database as claimed in amended Claim 1 and 30.

Furthermore, Claims 1 and 30 further call out the feature of where one portion of the metadata stored in the metadata database constitute a multiple language portion with some of the metadata comprising at least one multiple language metadata.

In view of the amendments to Claims 1 and 30 and the remarks above, it is respectfully submitted that Claims 1 and 30 as amended are Novel as claims 1 and 30 teach a metadata database management system where at least one portion of the metadata database is integrated by being coupled by a common information bus to the

metadata applications of the knowledge manager and where the metadata database constitute a multiple language portion.

Further, Applicants respectfully submit that dependent claims 2 to 29 and renumbered dependent claims 31 to 40 which depends from amended independent claims 1 and 30 respectively also now possess Novelty for at least the same reasons as independent claims 1 and 30 as amended. Support for the amendments are found in the specifications as filed.

In the same Written Opinion dated 26 September 2003, the Authorized Officer has also objected to claims 1 – 52 for lack of Inventive Step.

As submitted earlier, citations D1 to D3 all describe in general a variety of databases having metadata portions for providing access or format information of the data in the database and for providing means of retrieving or accessing this data.

However, Applicants respectfully submit that the citations D1 to D3 whether individually or in combination of each other do not teach nor suggest the features as taught in amended claims 1 and 30 of the present invention. The features being the integration of the portions of the metadata database by being coupled by a common information bus to the metadata applications of the knowledge manager and where the metadata database constitute a multiple language portion.

It is respectfully submitted that Claims 1 and 30 as amended do possess Inventive Step as claims 1 and 30 teach a metadata database management system where at least one portion of the metadata database is integrated by being coupled by a common information bus to the metadata applications of the knowledge manager and where the metadata database constitute a multiple language portion.

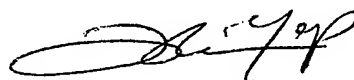
Further, Applicants respectfully submit that dependent claims 2 to 29 and dependent claims 31 to 40 which depends from amended independent claims 1 and 30 respectively also now possess Inventive Step for at least the same reasons as independent claims 1 and 30 as amended. Support for the amendments are found in the specifications as filed.

The Applicant further submits that no new matter has been added to the application by these amendments.

The Applicant respectfully submits that the earlier amended Claims do overcome the Authorized Officer's objections. In view of the above, the Applicant respectfully submits that the present application is in condition for allowance. Reconsideration of the present application and a favorable response are respectfully requested.

Respectfully submitted,

Date : 29 January 2004

A handwritten signature in dark ink, appearing to read 'Adrion YAP', is written over a horizontal line.

Adrion YAP

CLAIMS

(AMENDED)

1. A metadata database management system for at least one database, wherein the at least one database is coupled to receive information from at least one information source and coupled to provide information to at least one information consumer, the metadata database management system comprising:

a metadata database for storing metadata associated with data stored in the at least one database, for storing metadata associated with the at least one information source, and for storing metadata associated with the at least one information consumer; and

a knowledge manager coupled to the metadata database, the knowledge manager comprising at least one metadata application for managing a plurality of knowledge aspects of the at least one database, the at least one metadata application for accessing at least some of the metadata stored in the metadata database, and the at least one metadata application for using the at least some of the metadata to manage at least one of the plurality of knowledge aspects of the at least one database;

wherein at least some of the metadata stored in the metadata database constitute at least one portion of the metadata database, and

wherein the at least one portion of the metadata database is integrated by being inter-coupled by a common information bus to the at least one metadata application of the knowledge manager;

further wherein the at least some of the metadata stored in the metadata database constitute a multiple language portion of the metadata database, and wherein the at least some of the metadata comprises at least one multiple language metadata.

2. A metadata database management system in accordance with claim 1 being adapted for dynamically coupling to the at least one database.

3. A metadata database management system in accordance with claim 1 being adapted for dynamically coupling to the plurality of information sources.
4. A metadata database management system in accordance with claim 1 being adapted for dynamically coupling to the plurality of information consumers.
5. A metadata database management system in accordance with claim 1, wherein the at least one information source comprises at least another database, the metadata database management system for coupling to the at least another database, and the metadata database for storing metadata associated with the at least another database.
6. A metadata database management system in accordance with claim 5, wherein the at least another database has at least another one information source coupled thereto, the metadata database management system for coupling to the at least another one information source, and the metadata database for storing metadata associated with the at least another one information source.
7. A metadata database management system in accordance with claim 5, wherein the at least another database has at least another one information consumer coupled thereto, the metadata database management system for coupling to the at least another one information consumer, and the metadata database for storing metadata associated with the at least another one information consumer.
8. A metadata database management system in accordance with claim 1, wherein the at least one information consumer comprises at least one other database, the metadata database management system for coupling to the at least one other database, and the metadata database for storing metadata associated with the at least one other database.
9. A metadata database management system in accordance with claim 8, wherein the at least one other database is coupled to at least one other information source, the metadata database

management system for coupling to the at least one other information source, and the metadata database for storing metadata associated with the at least one other information source.

10. A metadata database management system in accordance with claim 8, wherein the at least one other database is coupled to at least one other information consumer, the metadata database management system for coupling to the at least one other information consumer, and the metadata database for storing metadata associated with the at least one other information consumer.

11. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a knowledge portion of the metadata database, and wherein the at least some of the metadata comprises at least one knowledge metadata.

12. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a knowledge entity portion of the metadata database, and wherein the at least some of the metadata comprises at least one knowledge entity metadata.

13. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a data mapping portion of the metadata database, and wherein the at least some of the metadata comprises at least one data mapping metadata.

14. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a data dictionary portion of the metadata database, and wherein the at least some of the metadata comprises at least one data dictionary metadata.

15. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a change management portion of the metadata database, and wherein the at least some of the metadata comprises at least one change management metadata.

16. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a business rules portion of the metadata database, and wherein the at least some of the metadata comprises at least one business rules metadata.

17. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a business event portion of the metadata database, and wherein the at least some of the metadata comprises at least one business event metadata.

18. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a reference and standards portion of the metadata database, and wherein the at least some of the metadata comprises at least one reference and standards metadata.

~~19. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a multiple language portion of the metadata database, and wherein the at least some of the metadata comprises at least one multiple language metadata.~~

~~20~~19. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a document resources portion of the metadata database, and wherein the at least some of the metadata comprises at least one document resources metadata.

- | 2120. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a data model manager for using the at least some of the metadata to manage at least one data model of the at least one database.
- | 2221. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a data dictionary manager for using the at least some of the metadata to manage at least one data dictionary of the at least one database.
- | 2322. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a knowledge entity manager for using the at least some of the metadata to manage at least one knowledge entity of the at least one database.
- | 2423. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a data mapper for using the at least some of the metadata to manage at least one data mapping of the at least one database.
- | 2524. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a change manager for using the at least some of the metadata to manage at least one change associated with the at least one database.
- | 2625. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a business rules processor for using the at least some of the metadata to manage at least one business rule associate with the at least one database.
- | 2726. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a reference and standards processor for using the at least some of the metadata to manage at least one reference of the at least one database.
- | 2827. A metadata database management system in accordance with claim 27, wherein the at least one reference comprises at least one standard.

2928. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a performance manager for using the at least some of the metadata to manage at least one performance aspect of the at least one database.

3029. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a graphical user interface for using the at least some of the metadata to manage at least one graphical user interface aspect of the at least one database.

~~31. A metadata database for a metadata database management system of at least one database, wherein the at least one database is coupled to receive information from at least one information source and coupled to provide information to at least one information consumer, the metadata database comprising:~~

~~a metadata repository for storing metadata associated with data stored in the at least one database, for storing metadata associated with the at least one information source, and for storing metadata associated with the at least one information consumer.~~

~~32. A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a knowledge portion of the metadata repository, and wherein the at least some of the metadata comprises at least one knowledge metadata.~~

~~33. A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a knowledge entity portion of the metadata repository, and wherein the at least some of the metadata comprises at least one knowledge entity metadata.~~

~~34. A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a data mapping portion of the metadata repository, and wherein the at least some of the metadata comprises at least one data mapping metadata.~~

35. — A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a data dictionary portion of the metadata repository, and wherein the at least some of the metadata comprises at least one data dictionary metadata.

36. — A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a change management portion of the metadata repository, and wherein the at least some of the metadata comprises at least one change management metadata.

37. — A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a business rules portion of the metadata repository, and wherein the at least some of the metadata comprises at least one business rules metadata.

38. — A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a business event portion of the metadata repository, and wherein the at least some of the metadata comprises at least one business event metadata.

39. — A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a reference and standards portion of the metadata repository, and wherein the at least some of the metadata comprises at least one reference and standards metadata.

40. — A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a multiple language portion of the metadata repository, and wherein the at least some of the metadata comprises at least one multiple language metadata.

41. — A metadata database in accordance with claim 31, wherein at least some of the metadata stored in the metadata repository constitute a document resources portion of the metadata

repository, and wherein the at least some of the ~~metadata comprises at least one document resources metadata.~~

4230. A knowledge manager for a metadata database management system of at least one database, wherein the at least one database is coupled to receive information from at least one information source and coupled to provide information to at least one information consumer, the knowledge manager comprising:

at least one metadata application for coupling to a metadata database, the at least one metadata application for managing a plurality of knowledge aspects of the at least one database, the at least one metadata application for accessing at least some of the metadata stored in the metadata database, and the at least one metadata application for using the at least some of the metadata to manage at least one of the plurality of knowledge aspects of the at least one database;

wherein at least some of the metadata stored in the metadata database constitute at least one portion of the metadata database, and

wherein the at least one portion of the metadata database is integrated by being inter-coupled by a common information bus to the at least one metadata application of the knowledge manager;

further wherein the at least some of the metadata stored in the metadata database constitute a multiple language portion of the metadata database, and wherein the at least some of the metadata comprises at least one multiple language metadata.

4331. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a data model manager for using the at least some of the metadata to manage at least one data model of the at least one database.

4432. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a dictionary manager for using the at least some of the metadata to manage at least one data dictionary of the at least one database.

4533. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a knowledge entity manager for using the at least some of the metadata to manage at least one knowledge entity of the at least one database.
4634. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a data mapper for using the at least some of the metadata to manage at least one data mapping of the at least one database.
4735. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a change manager for using the at least some of the metadata to manage at least one change associated with the at least one database.
4836. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a business rules processor for using the at least some of the metadata to manage at least one business rule associate with the at least one database.
4937. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a reference and standards processor for using the at least some of the metadata to manage at least one reference of the at least one database.
5038. A knowledge manager in accordance with claim 4937, wherein the at least one reference comprises at least one standard.
5139. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises a performance manager for using the at least some of the metadata to manage at least one performance aspect of the at least one database.
5240. A knowledge manager in accordance with claim 4230, wherein the at least one metadata application comprises at least one graphical user interface for using the at least some of the metadata to manage at least one graphical user interface aspect of the at least one database.

CLAIMS

1. A metadata database management system for at least one database, wherein the at least one database is coupled to receive information from at least one information source and coupled to provide information to at least one information consumer, the metadata database management system comprising:

a metadata database for storing metadata associated with data stored in the at least one database, for storing metadata associated with the at least one information source, and for storing metadata associated with the at least one information consumer; and

a knowledge manager coupled to the metadata database, the knowledge manager comprising at least one metadata application for managing a plurality of knowledge aspects of the at least one database, the at least one metadata application for accessing at least some of the metadata stored in the metadata database, and the at least one metadata application for using the at least some of the metadata to manage at least one of the plurality of knowledge aspects of the at least one database;

wherein at least some of the metadata stored in the metadata database constitute at least one portion of the metadata database, and

wherein the at least one portion of the metadata database is integrated by being inter-coupled by a common information bus to the at least one metadata application of the knowledge manager;

further wherein the at least some of the metadata stored in the metadata database constitute a multiple language portion of the metadata database, and wherein the at least some of the metadata comprises at least one multiple language metadata.

2. A metadata database management system in accordance with claim 1 being adapted for dynamically coupling to the at least one database.

3. A metadata database management system in accordance with claim 1 being adapted for dynamically coupling to the plurality of information sources.

4. A metadata database management system in accordance with claim 1 being adapted for dynamically coupling to the plurality of information consumers.
5. A metadata database management system in accordance with claim 1, wherein the at least one information source comprises at least another database, the metadata database management system for coupling to the at least another database, and the metadata database for storing metadata associated with the at least another database.
6. A metadata database management system in accordance with claim 5, wherein the at least another database has at least another one information source coupled thereto, the metadata database management system for coupling to the at least another one information source, and the metadata database for storing metadata associated with the at least another one information source.
7. A metadata database management system in accordance with claim 5, wherein the at least another database has at least another one information consumer coupled thereto, the metadata database management system for coupling to the at least another one information consumer, and the metadata database for storing metadata associated with the at least another one information consumer.
8. A metadata database management system in accordance with claim 1, wherein the at least one information consumer comprises at least one other database, the metadata database management system for coupling to the at least one other database, and the metadata database for storing metadata associated with the at least one other database.
9. A metadata database management system in accordance with claim 8, wherein the at least one other database is coupled to at least one other information source, the metadata database management system for coupling to the at least one other information source, and the metadata database for storing metadata associated with the at least one other information source.

10. A metadata database management system in accordance with claim 8, wherein the at least one other database is coupled to at least one other information consumer, the metadata database management system for coupling to the at least one other information consumer, and the metadata database for storing metadata associated with the at least one other information consumer.
11. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a knowledge portion of the metadata database, and wherein the at least some of the metadata comprises at least one knowledge metadata.
12. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a knowledge entity portion of the metadata database, and wherein the at least some of the metadata comprises at least one knowledge entity metadata.
13. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a data mapping portion of the metadata database, and wherein the at least some of the metadata comprises at least one data mapping metadata.
14. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a data dictionary portion of the metadata database, and wherein the at least some of the metadata comprises at least one data dictionary metadata.
15. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a change management portion of the metadata database, and wherein the at least some of the metadata comprises at least one change management metadata.

16. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a business rules portion of the metadata database, and wherein the at least some of the metadata comprises at least one business rules metadata.

17. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a business event portion of the metadata database, and wherein the at least some of the metadata comprises at least one business event metadata.

18. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a reference and standards portion of the metadata database, and wherein the at least some of the metadata comprises at least one reference and standards metadata.

19. A metadata database management system in accordance with claim 1, wherein the at least some of the metadata stored in the metadata database constitute a document resources portion of the metadata database, and wherein the at least some of the metadata comprises at least one document resources metadata.

20. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a data model manager for using the at least some of the metadata to manage at least one data model of the at least one database.

21. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a data dictionary manager for using the at least some of the metadata to manage at least one data dictionary of the at least one database.

22. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a knowledge entity manager for using the at least some of the metadata to manage at least one knowledge entity of the at least one database.
23. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a data mapper for using the at least some of the metadata to manage at least one data mapping of the at least one database.
24. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a change manager for using the at least some of the metadata to manage at least one change associated with the at least one database.
25. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a business rules processor for using the at least some of the metadata to manage at least one business rule associate with the at least one database.
26. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a reference and standards processor for using the at least some of the metadata to manage at least one reference of the at least one database.
27. A metadata database management system in accordance with claim 27, wherein the at least one reference comprises at least one standard.
28. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a performance manager for using the at least some of the metadata to manage at least one performance aspect of the at least one database.
29. A metadata database management system in accordance with claim 1, wherein the at least one metadata application comprises a graphical user interface for using the at least some of the metadata to manage at least one graphical user interface aspect of the at least one database.

30. A knowledge manager for a metadata database management system of at least one database, wherein the at least one database is coupled to receive information from at least one information source and coupled to provide information to at least one information consumer, the knowledge manager comprising:

at least one metadata application for coupling to a metadata database, the at least one metadata application for managing a plurality of knowledge aspects of the at least one database, the at least one metadata application for accessing at least some of the metadata stored in the metadata database, and the at least one metadata application for using the at least some of the metadata to manage at least one of the plurality of knowledge aspects of the at least one database;

wherein at least some of the metadata stored in the metadata database constitute at least one portion of the metadata database, and

wherein the at least one portion of the metadata database is integrated by being inter-coupled by a common information bus to the at least one metadata application of the knowledge manager;

further wherein the at least some of the metadata stored in the metadata database constitute a multiple language portion of the metadata database, and wherein the at least some of the metadata comprises at least one multiple language metadata.

31. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a data model manager for using the at least some of the metadata to manage at least one data model of the at least one database.

32. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a dictionary manager for using the at least some of the metadata to manage at least one data dictionary of the at least one database.

33. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a knowledge entity manager for using the at least some of the metadata to manage at least one knowledge entity of the at least one database.

34. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a data mapper for using the at least some of the metadata to manage at least one data mapping of the at least one database.

35. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a change manager for using the at least some of the metadata to manage at least one change associated with the at least one database.

36. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a business rules processor for using the at least some of the metadata to manage at least one business rule associate with the at least one database.

37. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a reference and standards processor for using the at least some of the metadata to manage at least one reference of the at least one database.

38. A knowledge manager in accordance with claim 37, wherein the at least one reference comprises at least one standard.

39. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises a performance manager for using the at least some of the metadata to manage at least one performance aspect of the at least one database.

40. A knowledge manager in accordance with claim 30, wherein the at least one metadata application comprises at least one graphical user interface for using the at least some of the metadata to manage at least one graphical user interface aspect of the at least one database.